

REVIEW OF APPLICATION FOR CERTIFICATION OF OPEN SQUARE HYDROELECTRIC PROJECT

This report provides review findings and recommendations related to the application submitted to the Low Impact Hydropower Institute (LIHI) by Open Square Properties LLC (Applicant) for Low Impact Hydropower Certification of the Open Square Hydroelectric Project (the Project) on the Connecticut River canal in Holyoke, Massachusetts. The Project is physically located within the Holyoke Gas & Electric Department (HG&E, a municipal utility) Hydropower System, which consists of Holyoke Dam on the Connecticut River and the Holyoke Canal System. HG&E also has a certification application pending before LIHI.

I. PROJECT'S GEOGRAPHIC LOCATION

The Open Square Hydroelectric Project is located on Holyoke Canal System, which is associated with Holyoke Dam, the first dam on the mainstem of the Connecticut River upstream of Long Island Sound, as shown in Figure 1.

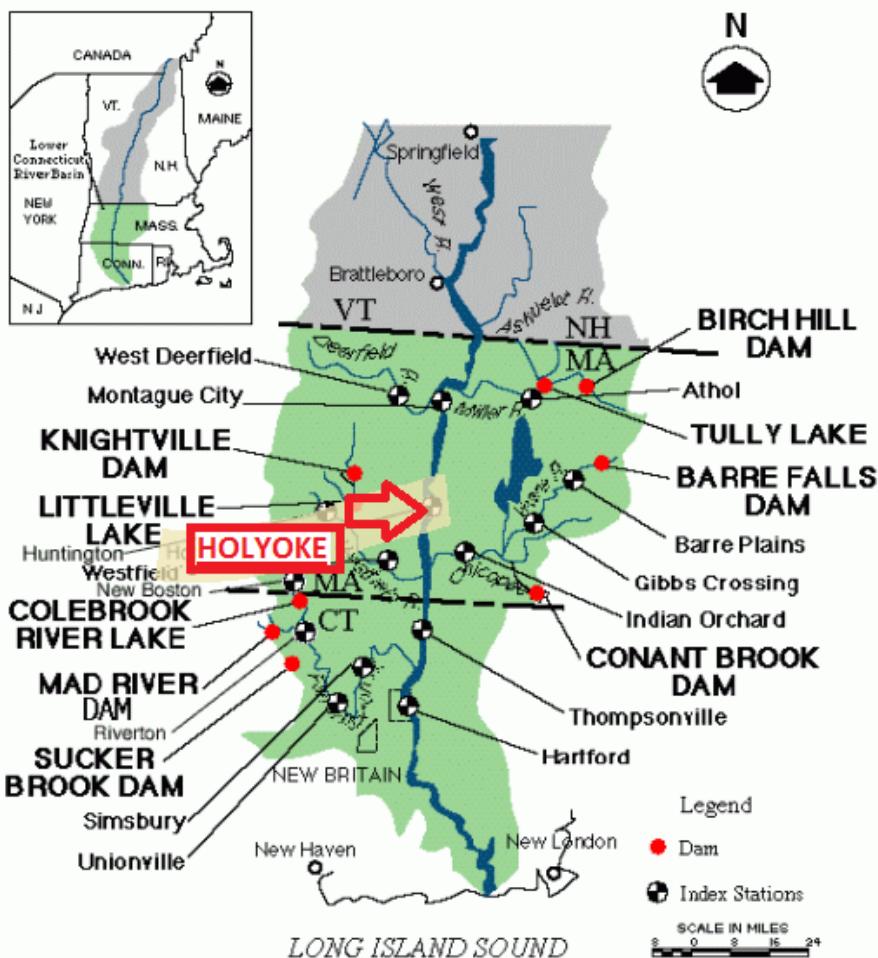


Figure 1. Location of Holyoke Dam, the first dam on the mainstem of the Connecticut River. Base map shows Corps of Engineers dams and index stations.

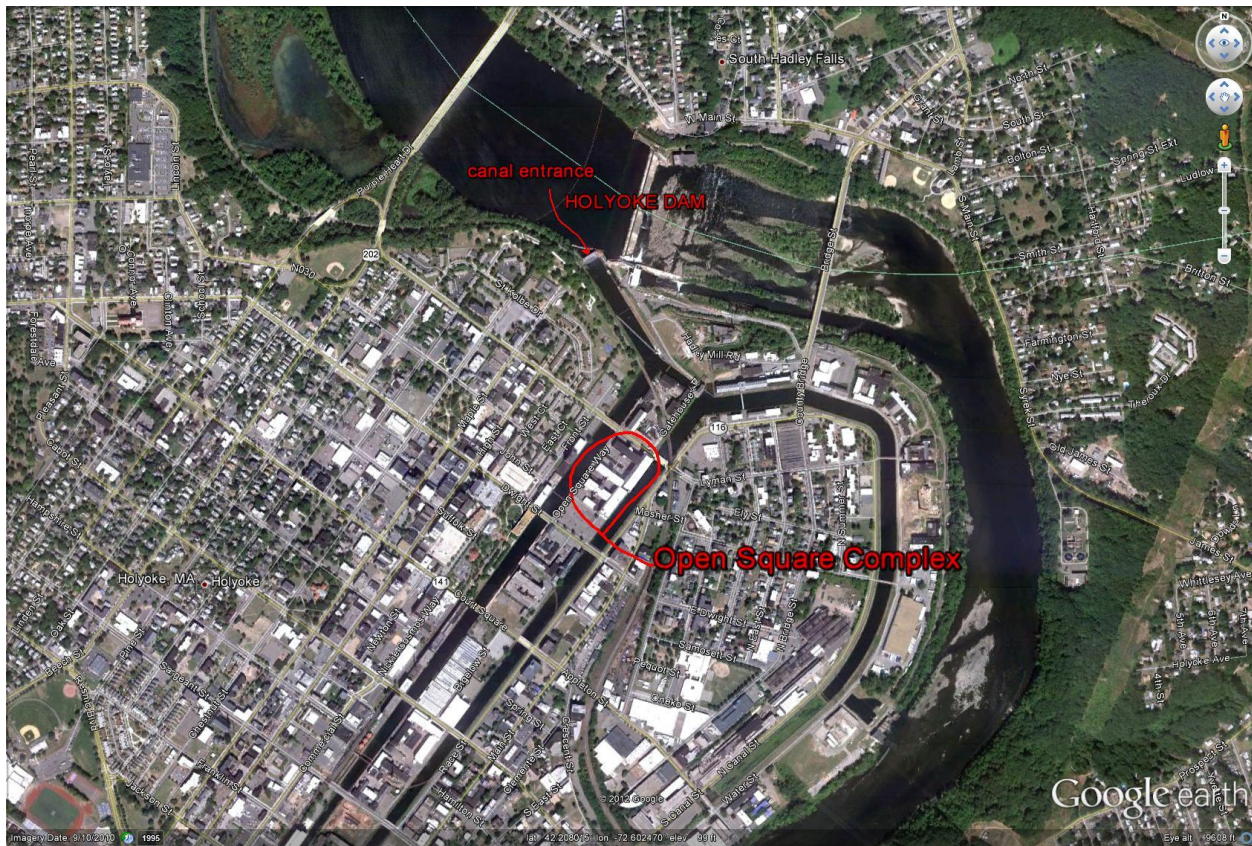


Figure 2. Open Square location within the canal system.

Shown in Figure 2, Open Square is a mixed-use development of seven historic mill buildings containing 685,000 square feet of floor area on an 8-½ acre city block located between the First and Second Level Canals of the HG&E Hydropower System. The Project occupies a small amount of space within the complex.

II. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

Figure 3 shows the layout of the Holyoke Canal System, including the siting of the Open Square Project (the area shaded green) within that system. The canal system consists of three levels. The Project utilizes the 20 feet of head between the First Level Canal at elevation 97.5 feet msl and the Second Level Canal at elevation 77.5 feet msl. The First Level Canal is a subsystem about 6,500 ft long and running through the city of Holyoke.

HG&E owns and operates hydroelectric facilities at Holyoke Dam (the Hadley Falls Station) and in the Holyoke Canal System. Within the canal system, HG&E owns eighteen stations, two of which, Crocker Mill A and B and Crocker Mill C, are no longer operating and are scheduled for decommissioning; as with Open Square, most of the HG&E canal system hydroelectric units are located within buildings that are used for unrelated light commercial or industrial purposes. Six HG&E stations utilize water from the First Level Canal, and there is a second privately owned station, Parsons, which is similarly located but no longer operates as it has been partially demolished due to a fire.

The Canal System begins at a gatehouse structure located directly upstream of Hadley Falls Station. A downstream fish passage louver facility is located starting about 554 feet downstream of the canal gatehouse. The full-depth louver rack is angled downstream across the canal and ends at a bypass facility and pipe. The pipe transports migrating fish to the Hadley Falls Station tailrace. The No. 1 Overflow structure, which is located immediately downstream of the gatehouse, discharges water directly back to the Hadley Falls Station tailrace, or to the fish lift attraction water.

Open Square (a.k.a. Aubin Station) consists of two powerhouses each with single units, referred to as the D-Wheel and the G-Wheel. The D-Wheel Powerhouse is located in the northeast corner of the lower level floor of Mill 2 at Open Square. The D-Wheel unit consists of a Leffel 33-inch 'Z' Vertical Francis Turbine in a pressure flume with an Electric Machine Company synchronous generator installed in 1933. The system generates an average of 230 kW.

The G-Wheel powerhouse is located in the northwest corner of the lower level floor of Mill 5. The unit consists of a Leffel 33-inch 'Z' Vertical Francis Turbine in a pressure flume with a General Electric synchronous generator installed in 1928. The system generates an average of 250 kW.

The dam and canal system were conceived and constructed as one system by the South Hadley Falls Company starting in 1847-1848. The purpose of the system was to harness the power of the Falls by diverting water from the Connecticut River to mills for mechanical power for manufacturing. Open Square's first mills were built and operated by the South Hadley Falls Company before the company went bankrupt in 1854 (Mill 1 dates to 1848). The first hydroelectric turbine was installed within the canal system in 1888. The Hadley Falls Dam continued to be used solely for diversion of flow until 1950 when the first hydroelectric turbine was installed; a second unit followed in 1983.



Figure 3. Dam and canal system layout. Open Square site shaded green. Flow enters canal system at upper right corner of schematic.

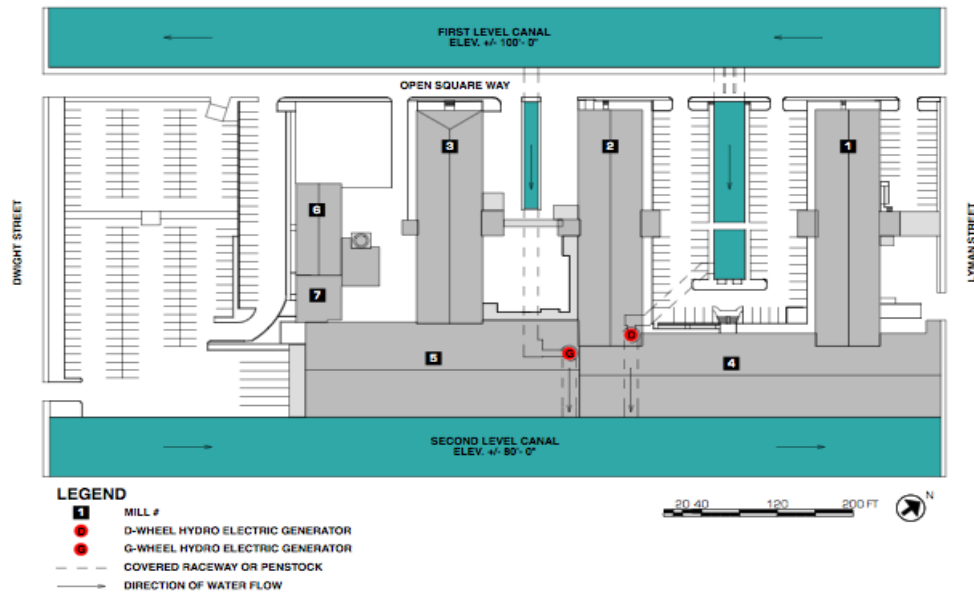


Figure 4. Location of the hydroelectric stations within the Open Square complex.

III. REGULATORY AND COMPLIANCE STATUS

The Project is unlicensed and is not subject to any federal or state environmental permits or certifications relevant to the LIHI criteria (email message from Open Square, February 20, 2012). The HG&E facilities, on the other hand, operate under a dozen FERC licenses, one of which applies to Hadley Falls Station and five of the canal system stations (FERC Project No. 2004). HG&E purchased its facilities after the Project No. 2004 license was issued in 1999 and proceeded to enter into settlement discussions to resolve outstanding rehearing requests. The discussions resulted in a comprehensive settlement agreement and amendment of the FERC license in 2005. The Massachusetts Department of Environmental Protection (MassDEP) also issued a new water quality certification on February 14, 2001 replacing a July 28, 1999, certification that had been the subject of an administrative appeal.

IV. PUBLIC COMMENTS RECEIVED BY LIHI

The LIHI application was deemed complete and publicly noticed on December 5, 2011. No comments were received during the notice period, which ended February 5, 2012.

V. LIHI CRITERIA REVIEW

Under each of the issue sections that follow, I include a table that contains the related LIHI questionnaire sections and my analysis and conclusions.

General Conclusions and Recommendations. I recommend that the facility be conditionally certified for the standard period of five years, with two recommended conditions based on two issues—one regarding cultural resources protection and one regarding public recreational use. The two recommended conditions are set forth below. If these conditions are attached to the certification, in my opinion the Project will meet all of LIHI's criteria for the reasons summarized below.

Regarding flows, the Project hydroelectric units are dispatched by HG&E in a manner that complies with flow schedule set forth in HG&E's 2005 amended license for FERC Project No. 2004.

Regarding water quality, MassDEP commented that the Project has no independent influence over water quality, which is sufficiently protected under the water quality certification and license for FERC Project No. 2004. Further MassDEP indicated that, although the waters in this segment of the Connecticut River are 303(d) listed, the Project is not a factor with regard to the water quality parameters of concern (PCBs, e. coli, and TSS).

Regarding fish passage, the Project location on the canal is outside of the area for which fish passage is a concern. Upstream passage facilities are at Holyoke Dam on the river mainstem, and the entrance for downstream passage facilities is located between the canal gatehouse and the Project headrace. Since the Project intake is downstream of the louver fish passage system, most fish moving downstream are excluded from the canal system, limiting the potential for impingement and entrainment at the Project intake.

Regarding cultural resources protection, the complex is National Register eligible, but no protection is in place under the National Historic Preservation Act as the Project is unlicensed (unless the activity is subject to Section 106 review due to use of federal funds or the triggering of a federal permit review). Consequently, I am recommending Condition No. 1 below.

Regarding recreation, the City of Holyoke is developing the Holyoke Canal Walk, which is to include the Open Square property. According to the applicant, Open Square supports the Canal Walk and is cooperating with the City. To assure continued cooperation, especially with regard to the grant of easements, I recommend Condition No. 2.

Regarding other LIHI criteria, at least one T&E listed mussel species is present in the canal system, but the Project does not degrade mussel habitat, which is protected under the provisions of the license for Project No. 2004. The watershed protection criteria do not apply, and there is no watershed enhancement fund that would qualify the facility for extension of the certification term by three years. No dam removal has been recommended.

Issue 1. Full protection of archaeological and historic resources is not afforded.

Recommended Condition No. 1. Open Square Properties LLC shall consult with, and obtain approval from, the State Historic Preservation Office for activities that may have an adverse effect on cultural resources, including excavation, demolition, and structural alteration. Information on such activities shall be included in the annual reports filed with LIHI.

Issue 2. The City of Holyoke envisions including the Open Square property in the Holyoke Canal Walk; however, that portion of the Canal Walk has not yet been designed and easements have not been granted by Open Square LLC.

Recommended Condition No. 2. Open Square Properties LLC shall continue to cooperate with the City of Holyoke in the planning and development of the Holyoke Canal Walk, including the grant of easements under reasonable terms. The status of negotiations and construction scheduling shall be provided in the annual reports to LIHI.

A. Flows

Water flows within the canal system vary based upon river flows and regulatory requirements. Water levels in the canals are maintained at constant elevations except for twice yearly drawdowns for system maintenance (referred to as “canal system outages” in the HG&E license). The system is controlled at the HG&E gatehouse, which is manned around the clock. Open Square has a deeded right to 13 Mill Powers equivalent to 494 cfs; the Project currently utilizes approximately 436 cfs.

Conservation flow and monitoring and compliance requirements are set in HG&E’s amended federal license (Project No. 2004), which establishes flows for both the canal system and the Hadley Falls bypass channel, as well as the Connecticut River downstream. Under Article 405, HG&E must operate in a run-of-river mode with a stable headpond.¹ Article 406 prescribes seasonally adjusted flows for the bypass channel and canal system; it also requires the project to be operated under a specific prioritization scheme: fish passage flows, bypass reach flows, canal system flows, and then generation flows. The highest priority is maintenance of 400 cfs of flow through the canal system and 150 cfs for operation of the downstream fish passage louver facility (550 cfs total release at the canal gatehouse). Under Article 406, a modified Comprehensive Operations and Flow Plan (COFP) and a Comprehensive Canal Operations Plans (CCOP) were filed and approved by FERC (orders of August 15, 2006 and January 11, 2006, respectively). Under Article 407, HG&E must operate under the CCOP to protect and enhance water quality and mussel populations in the canal system.

In an email message dated February 20, 2012, the applicant clarified the Project’s influence over canal flow and water level management:

Our operation is manual, though we are looking to automate the units within the next two years. HG&E's tells us when to start or stop based on our water rights, an overnight agreement and a separate FERC approved Water Use Agreement. We have indentured rights to water 16 hours per day, Monday thru Saturday. In the extreme case when the river is running below 3,100 cfs, our share of water is proportioned. This has happened for only a few days in the last ten years. When we run, we typically run 24/7 under the overnight agreement with HG&E. Under the Water Use Agreement, HG&E can also ask us to turn our wheels off (but must compensate us for the hours

¹ The headpond level must be maintained within 0.2 foot of elevation 100.4 feet msl, which is 0.2 foot below the crest of the rubber flashboard system installed in 2001.

we are entitled to). The Water Use agreement is what HG&E uses to direct us to shut down for the purposes of the CCOP schedule in our application. First and second level turbines are coordinated to the extent possible to balance the flow of water between canals and back to the river. When there is an imbalance that cannot be addressed with turbines, valves between the canals are opened to balance water flows.

From the applicant's description, I would conclude that HG&E essentially controls the operation of the Open Square units to the extent that the HG&E is able to assure compliance with the CCOP.²² This is important as Open Square is not independently subject to any permit or license requirements.

Article 406(d) addresses protocols to protect fish, water quality, and mussels (included state and federally listed mussels) during the periodic canal maintenance drawdowns, or outages.

By order dated June 22, 2005, FERC approved a minimum flow compliance plan for the canal system (*Order Approving Permanent Canal Minimum Flow Compliance Plan Under April 19, 2005 Order*). The order requires FERC notification of non-compliance events within 30 days of occurrence. A review of FERC eLibrary records for the last three years did not disclose any incidences. A FERC-NYRO environmental inspection report (June 22, 2009) for a site visit on May 21, 2009 also did not indicate any flow-related problems. HG&E provided me with copies of its FERC minimum flow compliance reports for 2010 and 2011, and HG&E states in its reports that it was fully compliant with the minimum flow requirements throughout each of the years.

LIHI Questionnaire: Flows	
A.1	Is the Facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?
	Reviewer Analysis/Conclusions: Resource Agency Recommendations are incorporated in the 2005 FERC license for HG&E Project No. 2004. HG&E manages canal flows and water levels in a manner that assures compliance with the license and FERC-approved Canal Operations and Flow Plan (COFP). YES = PASS

²² The license for Holyoke 4 (FERC No. 2387) indicates that the Holyoke 2 unit, located at the far west end of the First Level Canal, is normally operated "in order to provide flow through as much of the first level as possible" before other First Level units are brought on line. This is consistent with the dispatching tables contained in the CCOP and presented in the LIHI application; however, other factors come into play, and exceptions occur as long as the 400 cfs minimum flow is maintained. In an email message dated March 13, 2012 and appended to this report, Paul Ducheneay, HG&E Superintendent of Hydro, stated, "Just as a point of reference, we would normally run City 2 or another unit near the end of the canal before Aubin for water quality reasons mainly. I just wanted to emphasize that condition change and the tables are use as guidance."

B. Water Quality

The canal and river are Class B waters. The Project is not subject to a water quality certification. MassDEP issued a revised water quality certification on February 14, 2001 for FERC Project No. 2004 and considers that certification to govern and control water quality in that segment of the Connecticut River and the canal system insofar as the hydroelectric facilities are concerned. In fact, MassDEP waived certification for FERC Project No. 7758 (Holyoke No. 4), another one of the stations at the First Canal Level, on the basis that the Project No. 2004 license and settlement agreement “specify all the conditions necessary to meet State water quality standards for the Holyoke No. 4 Project.” (FERC *Order Issuing Subsequent License* for City of Holyoke Gas & Electric Department, Project No. 7758-004, August 15, 2006, pp. 3-4).

The 15.8-mile segment of the Connecticut River upstream of the Connecticut/Massachusetts state line (Segment 34-05), encompassing Holyoke Dam, is 303(d) listed as a Category 5 water (*Final Massachusetts Year 2010 Integrated List of Waters*, November 2011). According to Robert Kubit, MassDEP (email message of February 4, 2012), “The Holyoke Canal system is located in segment 35-05 of the Connecticut River. The canal system and the Connecticut River downstream are listed as Non-Support for Fish Consumption and Primary Contact [recreation] and Partial Support for Secondary Contact [recreation]. These designations are due to PCB contamination and pathogens that are not caused by nor contributed to by Open Square's facility.” Another listed cause of impairment is total suspended solids.

LIHI Questionnaire: Water Quality	
B.1	<p>Is the Facility either: a) In Compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the Facility after December 31, 1986? Or b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?</p> <p>Reviewer Analysis/Conclusions: The Project does not have a water quality certification; however, Robert Kubit, MassDEP, commenting for the purposes of the LIHI application, stated, “We have no water quality certification issues with Open Square’s LIHI application as they are located within the Holyoke canal system and have no control over canal operations. Canal system flow and fish exclusion is controlled by Holyoke Gas & Electric FERC #2004.” (email message of June 29, 2011) YES to (b) = Go to B.2</p>
B.2	<p>Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?</p> <p>Reviewer Analysis/Conclusions: This segment of the Connecticut River, including the canal, is 303(d) for PCB fish tissue contamination, e. coli, and TSS. YES = Go to B.3</p>
B.3	If the answer to question B.2 is yes, has there been a determination that the Facility

	is not a cause of that violation?
	Reviewer Analysis/Conclusions: According to MassDEP, the Project does not cause or contribute to the impairments. (Robert Kubit, MassDEP, email message of February 4, 2012)
	YES = PASS

C. Fish Passage and Protection

The Project does not incorporate any special protection measures for fish, nor does it participate in the upstream and downstream fish passage measures at Holyoke. HG&E is the sole entity responsible for fish passage and protection at the site. HG&E operates passage facilities at Holyoke Dam for migratory runs of Atlantic salmon, American shad, blueback herring, alewife, striped bass, American eel, and sea lamprey. Upstream migrants do not enter the canal system, and the full-depth louver system constitutes the downstream passage facility and as designed prevents most downstream migrants that enter the canal system from reaching the Project and the other hydroelectric stations within the canal system.

LIHI Questionnaire: Fish Passage and Protection	
C.1	<p>Is the Facility in Compliance with <i>Mandatory Fish Passage Prescriptions</i> for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?</p> <p>Reviewer Analysis/Conclusions: No prescription exists. N/A = Go to C.2</p>
C.2	<p>Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?</p> <p>Reviewer Analysis/Conclusions: Anadromous and catadromous fish are present, and fish passage facilities are provided by HG&E. NO = Go to C.3</p>
C.3	<p>If, since December 31, 1986:</p> <ul style="list-style-type: none"> a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription, c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility? <p>Reviewer Analysis/Conclusions: Fish passage prescriptions are in place with respect to</p>

	<p>HG&E FERC Project No. 2004, including the louver system in the First Level Canal. Open Square is not subject to any passage prescriptions, nor are any separate facilities necessary.</p> <p>N/A = Go to C.4</p>
C.4	<p>If C3 was not applicable:</p> <p>a) are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? OR</p> <p>b) If the Facility is unable to meet the fish passage standards in 4.a, has the Applicant either i) demonstrated, and obtained a letter from the U.S. Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource, or ii) committed to the provision of fish passage measures in the future and obtained a letter from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service indicating that passage measures are not currently warranted?</p> <p>Reviewer Analysis/Conclusions: No separate passage facilities are necessary at the Project. Caleb Slater, MassWildlife Division of Fisheries & Wildlife, in a letter dated January 13, 2012, commented, "The louver bypass on the Holyoke Canal is the current fish passage prescription and is working effectively. Because most migratory fish are excluded from the canal system there are no fish passage requirements of any kind at this project."</p> <p>YES to (b) = Go to C.5</p>
C.5	<p>Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of <i>Riverine</i> fish?</p> <p>Reviewer Analysis/Conclusions: There are no prescriptions for riverine fish.</p> <p>N/A = Go to C.6</p>
C.6	<p>Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?</p> <p>Reviewer Analysis/Conclusions: There are no Resource Agency Recommendations for entrainment protection measures at the Project.</p> <p>N/A = PASS</p>

D. Watershed Protection

The criteria associated with watershed protection have limited, if any, applicability to the Project given its location on the canal and its ownership.

LIHI Questionnaire: Watershed Protection	
D.1	<p>Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline?</p>
	<p>Reviewer Analysis/Conclusions: There are no buffer zones at this project.</p>

	NO = Go to D.2
D.2	Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1., and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?
	<i>Reviewer Analysis/Conclusions:</i> There is no watershed enhancement fund. The facility does not qualify for an extension of the LIHI certification term by three years. NO = Go to D.3
D.3	Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation).
	<i>Reviewer Analysis/Conclusions:</i> There is no settlement agreement. NO = Go to D.4
D.4	Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project?
	<i>Reviewer Analysis/Conclusions:</i> There are neither recommendations nor a shoreline management plan related to the Project. N/A = PASS

E. Threatened and Endangered Species Protection

The state-endangered bald eagle, the federally threatened and state-endangered Puritan tiger beetle, the federally endangered and state-endangered shortnose sturgeon, the federally endangered and state-endangered dwarf wedgemussel, and the state-endangered yellow lampshell mussel are found in the general Project area; however, the canal system does not provide habitat for bald eagles and Puritan tiger beetles, and shortnose sturgeon are excluded by the fish passage louver system. HG&E's Threatened and Endangered Species Plan and the CCOP include measures to protect mussels in the canal system. HG&E installed a weir at the beginning of the First Level Canal to prevent habitat dewatering during canal outages (maintenance drawdowns). HG&E monitors mussel habitat; provides conservation flows in the canal system; uses maintenance protocols that protect habitat; and schedules annual outages for October, which minimizes the impact on mussels. During the annual outages, surveys have been conducted annually since 2003 and are planned to continue through at least 2014; interim reports are issued every four years, and a final report is to be produced in 2014. The second interim report ending with the 2009 season was filed with FERC by letter dated March 26, 2010. To date, yellow lampshell mussels have been found, but no dwarf wedgemussels (HG&E LIHI application, April 2010).

LIHI Questionnaire: Threatened and Endangered Species Protection	
E.1	<p>Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?</p> <p><i>Reviewer Analysis/Conclusions:</i> As discussed above, several species are present. One mussel species is known to inhabit the canal based on recent sampling. YES = Go to E.2.</p>
E.2	<p>If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?</p> <p><i>Reviewer Analysis/Conclusions:</i> There is no recovery plan for the two mussel species of interest. N/A = Go to E.3.</p>
E.3	<p>If the Facility has received authority to incidentally <i>Take</i> a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) Obtaining an incidental Take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?</p> <p><i>Reviewer Analysis/Conclusions:</i> HG&E is responsible for protection of the mussels under Article 416 of the license for Project No. 2004 N/A = Go to E.5.</p>
E.5	<p>If E.2 and E.3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?</p> <p><i>Reviewer Analysis/Conclusions:</i> Open Square does not have an independent impact on the mussel community in the canal system. YES = PASS</p>

F. Cultural Resource Protection

The Holyoke Canal Historic District is listed in the National Register of Historic Places. The Open Square site itself has not been included in the District, but the complex is on the Inventory of Historic and Archaeological Assets of the Commonwealth³ and consideration is being given to expanding the District boundaries to include the site. Since the Project is unlicensed, no protection is afforded by a Programmatic Agreement and Cultural Resources Management Plan, unlike the HG&E stations.

In order to assure protection of cultural resources, both archaeological and historic, I am recommending that certification be conditioned as worded on p. 6 above (Condition No. 1).

³ The complex was known as Lyman Mills in the 19th century. It was the first textile mill built in Holyoke (1848-50), following the Hadley Falls Company's original plan for mill development in Holyoke.

LIHI Questionnaire: Cultural Resource Protection	
F.1	If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption? <i>Reviewer Analysis/Conclusions:</i> The Project is not FERC regulated. N/A = Go to F.2
F.2	If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or Native American Tribe, or a letter from a senior officer of the relevant agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility? <i>Reviewer Analysis/Conclusions:</i> There is no protection plan in place; however, protection can be attained by conditioning the LIHI certification to require consultation with and approval of the SHPO for any activities that may affect cultural resources. YES if subject to Recommended Condition No. 1 = PASS

G. Recreation

As an unlicensed project, Open Square is not required to develop a recreation plan and provide public recreational facilities. Since it is located on the canal, there is limited potential for conventional recreational uses. Open Square is working with the City of Holyoke to extend the Holyoke Canal Walk project onto the Open Square property. The first phase of the Canal Walk, completed in 2009, consists of a wide promenade along the southeast side of the First Level Canal for the first block southwest of Open Square. Future phases will extend the Canal Walk along the Second Level Canal and then along the First Level Canal at Open Square, assuming successful procurement of easements and funding. A letter dated January 18, 2012 from the City of Holyoke to Open Square further describing the project is appended.

The applicant indicated in an email message dated March 14, 2012 that Open Square regards extension of the Canal Walk onto its property as a benefit to the company, stating: “We have not signed an easement yet since the project as it will be built on our property has yet to be designed. The first phase turned out fine and the Canal Walk addition to Open Square will be an asset created at no cost to us, so I do not anticipate any issues when it comes time to working out an easement.”

Given the commercial use of the complex, the applicant has an interest in the extension of the Canal Walk onto the Open Square property; however, I recommend Condition No. 2 in order to assure continued cooperation and the reasonable grant of easements to the City for that use.

LIHI Questionnaire: Recreation	
G.1	If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?

	Reviewer Analysis/Conclusions: The Project is not FERC-regulated. N/A = Go to G.2
G.2	If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and facilities, as Recommended by Resource Agencies or other agencies responsible for recreation? Reviewer Analysis/Conclusions: Pedestrian access along the canal at Open Square is envisioned by the City of Holyoke as part of the Holyoke Canal Walk. No other Resource Agency recommendations have been made. This criterion is met as long as Open Square continues to cooperate with the City on the Canal Walk. YES if subject to Recommended Condition No. 2 = Go to G.3
G.3	Does the Facility allow access to the reservoir and downstream reaches without fees or charges? Reviewer Analysis/Conclusions: The complex of buildings within which the hydroelectric units are located has been redeveloped commercially and general public access is available to the area for that purpose. YES = PASS

H. Facilities Recommended for Removal

The record does not indicate an interest on the part of resource agencies in removing Holyoke Dam.

LIHI Questionnaire: Facilities Recommended for Removal	
H.1	Is there a Resource Agency Recommendation for removal of the dam associated with the Facility? Reviewer Analysis/Conclusions: No. NO = PASS

APPENDIX

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Contacts..... A-1
Correspondence A-2 to A-15

CONTACTS

Entity	Authorized Representatives	Contact Information
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United States Fish and Wildlife Service	John P. Warner Assistant Supervisor	Conservation Planning Assistance and Endangered Species New England Field Office, U.S. Fish and Wildlife Service 70 Commercial Street, Suite 300 Concord, NH 03301 (603) 223-2541 - ext.15 Email: John_Warner@fws.gov
National Marine Fisheries Service	Marjorie Mooney	Science Center 166 Water Street Woods Hole, MA 02543-1026 Telephone: (508) 495-2000 Email: Marjorie.Mooney-Seus@noaa.gov
Mass. Department of Environmental Protection Division of Watershed Management	Robert Kubit, P.E.	Mass DEP Division of Watershed Management 627 Main Street Worcester, MA 01608 Telephone: (508) 767-2854 Email: Robert.kubit@state.ma.us
Massachusetts Division of Fisheries and Wildlife	Caleb Slater, PhD Anadromous Fish Project Leader	Telephone: (508) 389-6331 Email: caleb.slater@state.ma.us
State Historical Preservation Office	Edward L. Bell Senior Archaeologist	Massachusetts Historical Commission 220 Morrissey Boulevard Boston, MA 02125 Telephone: (617) 727-5128
National Park Service Rivers and Special Studies Branch	Kevin Mendik	Telephone: (617) 223-5299 Email: kevin_mendik@nps.gov

From: Paul Ducheney [mailto:ducheney@hged.com]
Sent: Monday, March 12, 2012 8:23 PM
To: ompompanoo@aol.com
Cc: Richard Murray
Subject: RE: Holyoke LIHI application

Jeff - we'll be forwarding the documents to you shortly. Just as a point of reference, we would normally run City 2 or another unit near the end of the canal before Aubin for water quality reasons mainly. I just wanted to emphasize that condition change and the tables are use as guidance.

Paul

-----"Jeffrey Cueto" <ompompanoo@aol.com> wrote: -----
To: "Paul Ducheney" <ducheney@hged.com>
From: "Jeffrey Cueto" <ompompanoo@aol.com>
Date: 03/12/2012 07:30AM
Cc: "fayer" <fayer@lowimpacthydro.org>
Subject: RE: Holyoke LIHI application
Thanks, Paul.

So, regarding #4, you can run Aubin instead of Holyoke 2 even if the Aubin units are the only First Level Canal units operating? It's not critical from an environmental perspective to maintain the 400 cfs down the length of the canal? I didn't see where the CCOP and COFP mention that alternative, but I also didn't see where there are any regulatory requirements to prioritize Holyoke 2 over the other units.

The 401 conditions are appended to the license, but I wanted to see the full document.

Jeff

From: Paul Ducheney [mailto:ducheney@hged.com]
Sent: Sunday, March 11, 2012 7:56 PM
To: ompompanoo@aol.com
Cc: fayer
Subject: RE: Holyoke LIHI application

Jeff,

- 1) we had a conference call with the Agencies and NGO's last week. Plan is to have written letters from them by April 1
- 2) I believe that we have performed the surveys consistent with our commitments. We plan on reviewing TU's comments and respond at a later time.
- 3) I can resend all the documents, however I believe that they were submitted as part of the original LIHI application, I'll check tomorrow.
- 4) In general, we run Aubin as conditions permit. He has water rights for his units that we need to make him "whole" on based on a water use agreement. The CCOP (comprehensive canal operation plan) or COFP allows for several combinations of flows based on hydro unit availability.

As for Aubin's application, I am a little surprised that LIHI is reviewing since LIHI has not to date given our canal units any consideration. I spoke to Mr. Ayer more than a year ago about breaking out our canal units from the application.

Thanks,

Paul

-----"Jeffrey Cueto" <ompompanoo@aol.com> wrote: -----

To: "Paul Ducheney" <ducheney@hged.com>

From: "Jeffrey Cueto" <ompompanoo@aol.com>

Date: 03/11/2012 04:46PM

Cc: "Fred Ayer" <fayer@lowimpacthydro.org>

Subject: RE: Holyoke LIHI application

Paul –

1. Perhaps you could update me as to whether you are still on schedule to get resource agency approvals by mid-March.
2. I note that TU recently raises several issues with respect to the 2011 canal mussel survey.
3. If you wouldn't mind, could you provide a copy of the 401 water quality certification for Project 2004? (as well as the land management plan, buffer zone management plan, and project boundary map as requested previously)
4. According to the license for Holyoke 4 at p. 3, in the First Level Canal, the COFP prioritizes operation of Holyoke 2 (FERC No. 2387), located at the far west end of the first level in order to provide flow through as much of the first level as possible. This is consistent with your tables 3-1 through 3-3 in the COFP and LIHI application. As I understand it, HG&E dispatches the Open Square (Aubin) units to assure consistency with the COFP, which basically prevents those units from operating until river flow reaches 5,390 cfs in the spring, for example. Mr. Aubin indicates that, separate from the water use agreement he has with HG&E, there are indentured rights that would enable Open Square to change these circumstances. He also described Open Square's operation as follows. I'd appreciate any input you may have on this.

"Our operation is manual, though we are looking to automate the units within the next two years. HG&E's tells us when to start or stop based on our water rights, an overnight agreement and a separate FERC approved Water Use Agreement. We have indentured rights to water 16 hours per day, Monday thru Saturday. In the extreme case when the river is running below 3,100 cfs, our share of water is proportioned. This has happened for only a few days in the last ten years. When we run, we typically run 24/7 under the overnight agreement with HG&E. Under the Water Use Agreement, HG&E can also ask us to turn our wheels off (but must compensate us for the hours we are entitled to). The Water Use agreement is what HG&E uses to direct us to shut down for the purposes of the CCOP schedule in our application. First and second level turbines are coordinated to the extent possible to balance the flow of water between canals and back to the river. When there is an imbalance that cannot be addressed with turbines, valves between the canals are opened to balance water flows."

Thanks.

Jeff

From: Paul Ducheney [mailto:ducheney@hged.com]

Sent: Saturday, February 25, 2012 10:24 AM

To: ompompanoo@aol.com

Cc: fayer

Subject: RE: Holyoke LIHI application

Importance: High

Hi Jeff,

You ask the a question that is difficult at best to estimate. It has always been HG&E's position that the LIHI review should move forward without the "written" approvals. Our proposal for downstream fish passage concepts associated with the Hadley Falls Units have been generally accepted by the agencies since last year. At this time we are finalizing some minor design improvements where do not change the concept. Our current schedule plans are to have a conference call with the agencies/NGO's in early March and ask for their written approval by mid-March. I see no reason why LIHI can not start the process now especially since the canal system is not in dispute. Also, I understand that John Aubin has applied for certification.... I would hope that his application is on hold too, since ALL environmental issues are being addressed by HG&E.

Hope this helps clarify our position.

Thanks,

Paul

-----"Jeffrey Cueto" <ompompanoo@aol.com> wrote: -----
To: "Paul Ducheney" <ducheney@hged.com>
From: "Jeffrey Cueto" <ompompanoo@aol.com>
Date: 02/14/2012 06:12PM
Cc: "Fred Ayer" <fayer@lowimpacthydro.org>
Subject: RE: Holyoke LIHI application

Paul -- Thanks for confirming receipt. If you could respond to the original email, I'd appreciate it. It would help me figure out when I will need to allocate time to process the application.

Also, it would be helpful if you would provide copies of the land management plan and the buffer zone management plan. Links to FERC eLibrary copies would suffice. I could also use a copy of the FERC project boundary map.

Thanks.

Jeff

-----Original Message-----
From: Paul Ducheney [mailto:ducheney@hged.com]
Sent: Friday, February 03, 2012 9:58 AM
To: Jeffrey Cueto
Subject: RE: Holyoke LIHI application

Jeff - got it.

Paul

From: "Jeffrey Cueto" <ompompanoo@aol.com>
To: "Paul S. Ducheney" <ducheney@hged.com>
Date: 02/03/2012 09:56 AM
Subject: RE: Holyoke LIHI application

Hi, Paul. Could you confirm that you got this email. I just wanted to make sure it didn't end up in the spam folder.
Jeff

From: Jeffrey Cueto [mailto:ompompanoo@aol.com]
Sent: Wednesday, January 25, 2012 11:44 AM
To: 'Paul S. Ducheney (ducheney@hged.com)'
Cc: 'Fred Ayer'
Subject: Holyoke LIHI application

Hi, Paul. LIHI has retained me to complete the review of HG&E's application for certification. I have been providing consulting services to LIHI for almost two years now. Formerly, I was responsible for the Vermont Agency of Natural Resources hydroelectric project review and water quality certification processes.

By email dated January 18, 2012, you asked LIHI to resume the application review process, indicating that the CCT members had given approval to move forward on the final design of downstream passage facilities. The following day, you sent another email stating that you expected written approval within the next month. Jackie Dingfelder, who was formerly working on the review for LIHI, in an email dated July 11, 2011 to you, had stated that LIHI would be willing to move forward on the review "...once HG&E receives formal written approval from all these agencies that they have approved the design for permanent upstream and downstream passage for all species, as well as the timetable for implementation..." Based on your recent emails, my sense is that HG&E may have an agreement in concept with respect to the design of downstream fish passage facilities but has not progressed to the point where a design has been completed, submitted to the agencies, and approved by the agencies. I would appreciate your confirmation as to whether that is correct, in which case the application will continue to be on hold. Please also clarify whether the implementation schedule has been modified and approved by the agencies.

I look forward to working with you on this application.

><{{{~> Jeffrey R. Cueto, P.E.
><{{{~> (802) 223-5175
><{{{~> ompompanoo@aol.com

From: John Aubin [mailto:john@opensquare.com]
Sent: Monday, February 20, 2012 1:44 PM
To: Jeffrey Cueto
Cc: 'Fred Ayer'
Subject: Re: LIHI Certification of Open Square Project

Hi Jeff,

1. There are no federal or state permits to which we must comply.
2. Our operation is manual, though we are looking to automate the units within the next two years. HG&E's tells us when to start or stop based on our water rights, an overnight agreement and a separate FERC approved Water Use Agreement. We have indentured rights to water 16 hours per day, Monday thru Saturday. In the extreme case when the river is running below 3,100 cfs, our share of water is proportioned. This has happened for only a few days in the last ten years. When we run, we typically run 24/7 under the overnight agreement with HG&E. Under the Water Use Agreement, HG&E can also ask us to turn our wheels off (but must compensate us for the hours we are entitled to). The Water Use agreement is what HG&E uses to direct us to shut down for the purposes of the CCOP schedule in our application. First and second level turbines are coordinated to the extent possible to balance the flow of water between canals and back to the river. When there is an imbalance that cannot be addressed with turbines, valves between the canals are opened to balance water flows.

Regards,

John

On Feb 20, 2012, at 7:13 AM, Jeffrey Cueto wrote:

John –

1. I realize that the project is unlicensed. What I was trying to determine is whether or not the project is subject to any federal or state permits that contain conditions relevant to the LIHI criteria. Part of my responsibilities as a reviewer is to confirm compliance with such permits. So are there any other federal or state agencies that have issued permits with which you must comply?
2. Regarding flows, I simply want to understand how the project is operated to conform with the CCOP. How do you know how much water HG&E is releasing into the canal system and what your share is in relationship to the other units between the first and second levels? Do all of the units located between the two levels always operate together? Is your operation manual or automated? I assume there must be some communication between your operator and HG&E to make things work correctly.

Thanks.

Jeff

From: John Aubin [mailto:john@opensquare.com]
Sent: Friday, February 17, 2012 11:10 AM
To: Jeffrey Cueto
Subject: Re: LIHI Certification of Open Square Project

Hi Jeff,

All the information listed in the intake review has either been provided to you, was in our letter of 11/29/11 or previously sent to Fred Ayer. However, in order to expedite the review I am repeating answers that were in emails to Fred that you may not have received copies of:

Questions from Intake Review of 7/21/11

2. Legal Relationship to HG&E:

HG&E has no legal or financial interest in the Open Square facilities. Open Square and HG&E have no shared ownership of any facilities.

6. Regulatory Status:

Open Square facilities were put in service before August 26, 1935 and are not required to be licensed FERC pursuant to Section 23(b)(1) of the Federal Power Act.

II. A. 1) Flows:

I addressed this issue with Fred Ayer in numerous emails. The particular assertion that the Dam was created first is not relevant or true. The dam and first sections of the canals were constructed at the same time in 1848. The original use of the canal based turbines was for mechanical power. Hydro electric power was not introduced into the canal system until 40 years later in 1888. The hydro electric facilities at the dam (which has the grates that resource agencies would like changed) were not added until 1950 after the industrial decline of Holyoke had begun and canal based turbines were taken off line thus freeing up water for turbines at the dam. There is no indication or documentation that the dam itself was originally contemplated as a location for turbines. There is no link, historical or otherwise between HG&E's current turbines at the dam and Open Square's turbines. Caleb Slater in his letter to Open Square included in our application has clearly indicated that the flow and fish passage systems on the canal are in compliance and separate from the "current unresolved fish passage" at the dam.

Several other questions come back to the Flows questions and the attempt to classify the entire HG&E owned canal system, canal turbines, dam and dam turbines, and Open Square turbines as one single facility. Fred Ayer has indicated in previous correspondence that this connection will be the grounds for linking Open Square to resource agency issues with the fish passage specific to HG&E's turbines at the dam (and his recommending rejection of Open Square's LIHI application). Per our conversations, I understand that this is not relevant to your review responsibilities. I also believe that the evidence and Caleb Slaters letter put's this issue to rest. If neither of these is the case, please let me know and I will be happy to provide additional information and clarification related to Open Square's relationship to HG&E owned property and facilities.

This completes my final review of the Intake Review form. Please do not hesitate to email or call me with additional questions. Your expeditious completion of your review and recommendation is much appreciated.

Thanks,

John

On Feb 14, 2012, at 2:55 PM, Jeffrey Cueto wrote:

John –

I contacted Fred Ayer. No comments were filed with LIHI in response to the Open Square public notice.

I'll do a more thorough completeness review after I hear back from you regarding your final review of the Intake Review form.

Please confirm my understanding that Open Square is not subject to any state or federal permits/licenses relevant to the LIHI criteria.

Under A.1, it would be helpful if you could provide an explanation of how Open Square's units are operated in compliance with the CCOP. In other words, what prevents Open Square from causing HG&E to be out of compliance with its flow requirements? On p. 16 of your application, you state that Open Square operates its stations "at the direction of HG&E..." You just don't explain how that happens. Is yours a manual operation that relies on HG&E providing information on flows it is releasing into the canal system?

Thanks.
Jeff

From: John Aubin [mailto:john@opensquare.com]
Sent: Monday, February 13, 2012 4:18 PM
To: Jeffrey Cueto
Subject: Re: LIHI Certification of Open Square Project

Hi Jeff,

Except for F2 which I am waiting on, I believe that we have submitted all the information that you requested in this email. I am sending it back with red responses as a checklist.

Of note:

Several items in Section E should be covered with the attached document from HG&E. Given the canal system status and HG&E's extensive work and sign offs on the canal system (separate to the added issues around the dam), it seems that their work covers Open Square as well. If you feel this is not the case and require further clarification or specific letters for Open Square from Fish and Wildlife specifically (or any other additional resource agencies), please let me know and I will obtain those documents.

I am going to give the Final Intake Review Form of 8/25/11 from LIHI one more review to see if anything appears to be missing beyond the contents of this email. Please let me know if you have any final questions or missing information once you have reviewed this email.

Also, please let me know if there were any public comments regarding our submission and if so, please forward copies to me.

Thank you,

John

On Dec 12, 2011, at 1:50 PM, Jeffrey Cueto wrote:

Mr. Aubin,

LIHI has retained my services to conduct LIHI's Full Review of Open Square's application for certification. I am a civil engineer/hydrologist with substantial experience in the FERC and state hydroelectric processes.

At the outset of initiating my full review, I noted that you asked several questions regarding LIHI's intake review (IR). My responses are below. (The letters/numbers at the beginning of each paragraph correspond to LIHI's criteria.) Should you need further clarification or information, do not hesitate to contact me.

A.1. Your LIHI application details the requirements to which HG&E is subject under the license for Project No. 2004, which includes the dam and several of the canal stations under its ownership, but you don't address how operations at Open Square are controlled to assure compliance with the CCOP. It would be helpful if you would clarify how the Open Square units are dispatched and whether there is any possibility of Open Square creating a situation of non-compliance with the CCOP and, therefore, the HG&E license flow requirements. I skimmed through the CCOP, and my understanding is that HG&E must track the operations of all of the stations in the canal in order to assure compliance and maintain compliance records. For the purposes of my review, it is unnecessary for you to demonstrate that HG&E is in compliance. So please let me know: 1) whether Open Square is subject to any individual flow requirements imposed through Resource Agency Recommendations or other regulatory requirements (see the definition of Resource Agency Recommendations in the LIHI Handbook) and **No**. 2) whether Open Square can cause non-compliance with the CCOP. **No**. After you respond, I'll let you know whether any additional documentation, such as a resource agency letter, is necessary.

B.1. You didn't answer the question of whether the Open Square project is subject to / has been issued a separate water quality certification. Since the Open Square project is not federally licensed, I'd suspect that it is not subject to a water quality certification. Further, Massachusetts apparently is waiving certification for separately licensed stations in the canal system (e.g., Holyoke No. 4, FERC Project No. 7758) as water quality issues are addressed by the license and certification for Project No. 2004. So the Open Square project would fall into B.1.b of the Questionnaire. I would judge at this point that Robert Kubit's email will be adequate. **We agree that this is addressed by Bob Kubit's original email.**

B.2. The IR form asks for 303(d) documentation. You state in the Questionnaire that the waters are not listed. You should either ask Mr. Kubit to verify that or give me the some other documentation demonstrating that neither the canal nor the river downstream are listed as impaired or that, if listed, the Open Square project does not cause or contribute to the impairment. MassDEP's website has the 303(d) listing information. **Addressed by Bob Kubit's 2nd email of 1/2/12 responding to request for clarification by John Aubin.**

C.1. My understanding is that the louvered bypass system was included in License Article 411 for Project 2004 as a prescription. Please get letters from the state and federal fisheries agencies (Caleb Slater and John Warner) indicating that the system is the current prescription and that it is working effectively, that is, in compliance with the prescription. Also, please ask them to verify that there is no need for passage facilities of any nature at the Open Square project. I note that the fisheries agencies reserved prescription rights for the Holyoke No. 4 project when that was licensed. **Addressed by Caleb Slater letter of 1/13/12 - John Warner has not responded to several emails and calls.**

C.2. You did not respond to this section. I suggest you explore with Caleb Slater and John Warner whether there is an issue. **Addressed by Caleb Slater letter of 1/13/12 - John Warner has not responded to several emails and calls.**

C.5 and C.6. I suggest also consulting Caleb and John with respect to these two sections. Section 5 of your application is specific to migratory fish, and does not relate to riverine (non-migratory) fish. I'd also expect that the louvered bypass system would work for non-migratory fish that move within the system, but would appreciate more information. **Addressed by Caleb Slater letter of 1/13/12 - John Warner has not responded to several emails and calls.**

E.1. Documentation of current listing status with respect to T&E species is needed. You should consult with the appropriate state and federal agencies. Contact information is available for the Fish and Wildlife Service <http://www.fws.gov/endangered/regions/index.html#tabs-5>. State contacts at http://www.mass.gov/dfwele/dfw/nhosp/nhosp_staff.htm. **I am attaching Section 7, Threatened and Endangered Species Protection from the HG&E LIHI Application of 5/4/10 including the a letter from the US Fish and Wildlife Service to HG&E of 3/16/10 which comprehensively address these issues. T&E within the canal system is limited to the yellow lamp mussel and dwarf wedge mussel. The plan for these species covers the entire canal system including Open Square and is directed by HG&E as described in Section 7.**

From: "Kubit, Robert (DEP)" <robert.kubit@state.ma.us>
Subject: RE: Open Square Hydro Electric Facility LIHI Certification Application
Date: February 2, 2012 2:14:47 PM EST
To: "John Aubin" <john@opensquare.com>

Hi John,

The Holyoke Canal system is located in segment 35-05 of the Connecticut River. The canal system and the Connecticut River downstream are listed as Non-Support for Fish Consumption and Primary Contact and Partial Support for Secondary Contact. These designations are due to PCB contamination and pathogens that are not caused by nor contributed to by Open Square's facility.

If further information is needed, please let me know.

Bob

Robert Kubit, P.E.
MassDEP
Division of Watershed Management
627 Main Street
Worcester MA 01608
Telephone: (508) 767-2854
Email: robert.kubit@state.ma.us
Fax: (508) 791-4131

-----Original Message-----

From: John Aubin [mailto:john@opensquare.com]
Sent: Friday, December 16, 2011 10:18 AM
To: Kubit, Robert (DEP)
Cc: Jeffrey Cueto
Subject: Open Square Hydro Electric Facility LIHI Certification Application

Hi Bob,

Jeff Cueto is reviewing our LIHI Certification application and has asked for documentation or verification from you that the Holyoke Canal and the Connecticut River downstream of our facility are not listed as having impaired water quality on form 303 (d) or if they are listed that Open Square's facility does not contribute to the impairment. I was not able to track down the actual 303 (d) form on the Mass DEP web site (it is quite a labyrinth!) and would appreciate it if you provide a response.

Thanks,

John Aubin

413 537-8660

From: "Kubit, Robert (DEP)" <robert.kubit@state.ma.us>
Date: June 29, 2011 2:50:33 PM EDT
To: "info@lowimpacthydro.org" <info@lowimpacthydro.org>
Cc: "john@opensquare.com" <john@opensquare.com>
Subject: FW: Open Square LIHI application

Dear Reviewer,

The Massachusetts Department of Environmental Protection is the agency responsible for issuing 401 water quality certificates for the state. We have no water quality certification issues with Open Square's LIHI application as they are located within the Holyoke canal system and have no control over canal operations. Canal system flow and fish exclusion is controlled by Holyoke Gas & Electric FERC #2004. Please contact me with any questions.

Robert Kubit, P.E.
MassDEP
Division of Watershed Management
627 Main Street
Worcester MA 01608
Telephone: (508) 767-2854
Email: robert.kubit@state.ma.us
Fax: (508) 791-4131

From: John Aubin [<mailto:john@opensquare.com>]
Sent: Wednesday, June 29, 2011 1:52 PM
To: Kubit, Robert (DEP)
Subject: Open Square LIHI application

Hi Bob,

I spoke with Fred Ayer of the Low Impact Hydropower Institute this afternoon. He said that it would be helpful if you wrote a letter stating that you had no issues with our LIHI application regarding water quality or related DEP issues. Let me know if you are able to do this. You can send directly to him or to me and I will forward. Thanks.

Regards,

John
John Aubin, Principal
Open Square Properties LLC
www.opensquare.com
4 Open Square Way
Holyoke, MA 01040
413 532-5057 ext. 202



Commonwealth of Massachusetts

Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

January 13, 2012

John Aubin, Principal
Open Square Properties LLC
4 Open Square Way
Holyoke MA 01040

RE: Open Square Hydro Project LIHI Certification

Dear John,

This letter is in response to your questions regarding the Holyoke Canal System and required fish passage protections.

The Project

The Open Square Hydro Project is located on the Connecticut River and the Holyoke Canal System (a man-made structure constructed for the purpose of power generation). It consists of three levels, referred to as First, Second, and Third Level Canals. The system is tiered with the first canal at the highest elevation and each subsequent canal at a lower elevation. A series of subsurface sluiceways extend between each of the canals. Many of the sluiceways contain rotating turbines that generate power. The sluiceways and canals are not considered to be navigable waterways under the Clean Water Act.

There are a total of twenty hydroelectric generating stations currently in service on the Holyoke Canal System including two owned by Open Square and seventeen that are owned and operated by HG&E (Holyoke Gas & Electric, a department of the City of Holyoke). The canal system begins with the canal gatehouse structure located between the Hadley Falls Station and the western shore.

The Holyoke Dam is the first dam encountered by fish migrating up the Connecticut River. The HG&E Holyoke Hydroelectric Project (FERC No. 2004) provides upstream and downstream passage for migratory fish at the Holyoke dam, include Atlantic salmon, American shad, Blueback herring, alewife, Striped bass, American eel, and Sea lamprey.

Potential Environmental Issues:

Because this is a small project located on the large Holyoke canal system the potential impacts are very limited. HG&E owns and operates the Holyoke hydro project (at the Holyoke dam) and with that dam and the adjacent gatehouse control the flow through the Holyoke canal system. Therefore HG&E (through the FERC license for Holyoke project) mitigates many of the potential environmental impacts.

- Run of River Operations: This project can only generate with water supplied by HG&E who are required by their FERC license to operate in a modified Run of River mode.
- Bypass Reach Flow: While the Holyoke canal system creates a substantial bypass reach- HG&E is required to release a minimum flow from the Holyoke dam. Operation of this project will not affect these flows.

www.masswildlife.org

Division of Fisheries and Wildlife
Field Headquarters, One Rabbit Hill Road, Westborough, MA 01581 (508) 389-6300 Fax (508)
An Agency of the Department of Fish and Game

- Fish Passage: The Connecticut River has significant runs of migratory fish. However, HG&E is responsible for upstream fish passage at the Holyoke Dam and upstream migrants cannot enter the canal system. HG&E also operates a fish exclusion device at the head of the Holyoke canal system. This full depth louver system effectively prevents most downstream migrants from entering the canal system. Therefore this project will not have fish passage requirements.
- Endangered Species: The Holyoke canal system is habitat for a state and federally endangered freshwater mussel. The potential presence of these mussels in the project area will require consultation with the MA Natural Heritage and Endangered Species Program and the U.S. Fish and Wildlife Service to ensure project operations protect these animals.

With regard to the specific questions in your email:

- *C.1. Please confirm that the Holyoke Canal System louvered bypass system owned and operated by HG&E is the current prescription and that it is working effectively, that is, in compliance with the prescription. Please also confirm that there is no need for passage facilities of any nature at the Open Square project.*

The louver bypass on the Holyoke Canal is the current fish passage prescription and is working effectively. Because most migratory fish are excluded from the canal system there are no fish passage requirements of any kind at this project.

- *C.2. This question ask: "Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g. because passage is blocked at downstream dam or the fish no longer have a migratory run)?" We do not see evidence of these fish at the Open Square facility, the bypass system owned by HG&E upstream appears to be very effective. Do you have any information or clarification to add to this question? If not, please indicate that there are no issues for this question.*

There are no issues from this question. The Holyoke canal is an artificial system and not the route for migratory fish passage past the Holyoke dam.

- *C.5.& C6 These questions ask: "Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of Riverine fish?" and "Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?" Open Square has no Mandatory Fish Passage Prescriptions nor Resource Agency Recommendations" for these fish. As in C.2. the bypass system appears to be very effective and we do not see evidence of these fish at the Open Square facility. Do you have any information or clarification to add to this question? If not, please indicate that there are no issues for this question.*

The Open Square project has no Mandatory Fish Passage Prescriptions nor Resource Agency Recommendations for Riverine, anadromous, or catadromous fish.

Please contact me if you have any further questions,



Caleb Slater, Ph.D.



Mayor Alex B. Morse

City of Holyoke

Office of Planning & Development

Planning Department

January 18, 2012

John Aubin
Open Square
4 Open Square Way
Holyoke, MA 01040

RE: HOLYOKE INFRASTRUCTURE PROJECTS SURROUNDING OPEN SQUARE

Dear Mr. Aubin,

As you are aware, the City of Holyoke is in the process of completing a significant public improvement project to create enhanced public pedestrian amenities along the historic canals in the core of the downtown that will bring walking areas along the properties within the canal district where there were not previously.

The first phase of the Canalwalk has been completed and includes the block directly to the south of your property along the 1st Level Canal, between Dwight Street and Appleton Street. The second phase of the project is now in review by MassDOT and will include the 2nd Level Canal, also between Dwight and Appleton Streets and including the sidewalks along those streets to tie the two phases together.

The City of Holyoke has also begun work on the third phase which will connect the Holyoke Transportation Center with the future passenger rail station. These preliminary plans have been completed and include the sidewalk along Open Square on Dwight Street as well as Race Street and Main Street and connections to the station.

The Canalwalk will also include the area along the Open Square property on the 1st Level Canal, as well as on the west side of the canal to complete the initial Canalwalk project creating an enhanced pedestrian environment of 2.1 miles within the historic canal district of Holyoke.

We appreciate your continued input in the design of these projects and your continual cooperation in support of these projects and working with us to make them a success.

Sincerely,


Kathleen Anderson
Director

ONE COURT PLAZA • HOLYOKE, MASSACHUSETTS 01040-5037
PHONE: (413) 322-5575 • FAX: (413) 322-5576 • E-MAIL: planning@ci.holyoke.ma.us
Birthplace of Volleyball